LOAD CELL TYPE BABY SCALE

"SUYASUYA" BSL-20A

MAINTENANCE MANUAL

EXCLUSIVE SALES. MISAKI INC.

MANUFACTURER. MISAKI INC.

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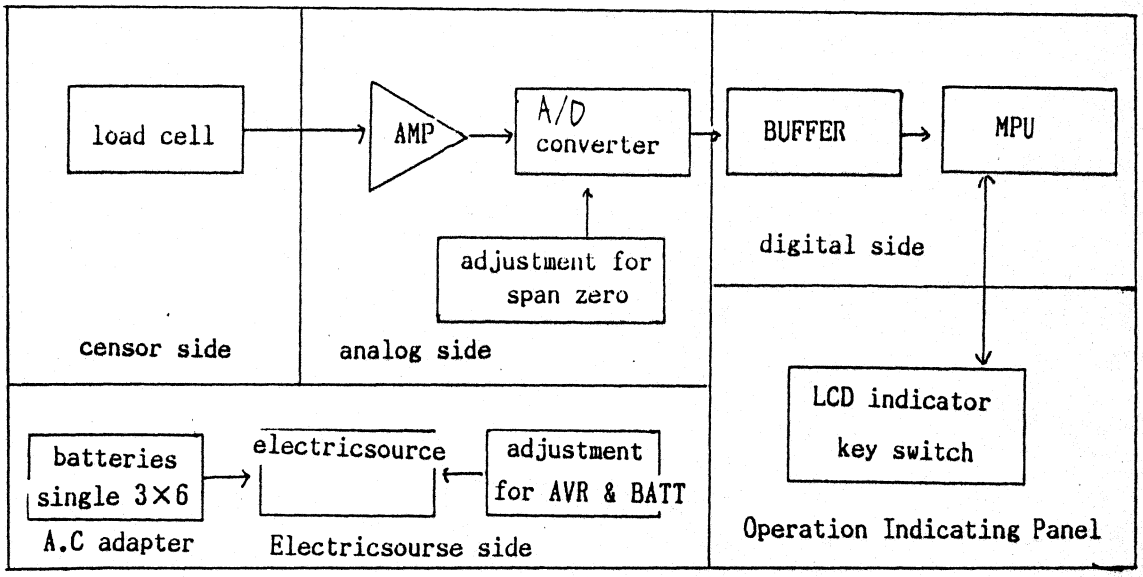
1. Outline of Baby Scale

This baby scale is made from a number of electronic parts and micro computer with an electric load cell.

This scale is consisted of a basket, a step, a base plate and an indicator. And you can use this as a little child scale if you take off a basket.

This has high durability and easy maintenance. This is high precise scale with two way battery system for saving energy.

Action construction drawing



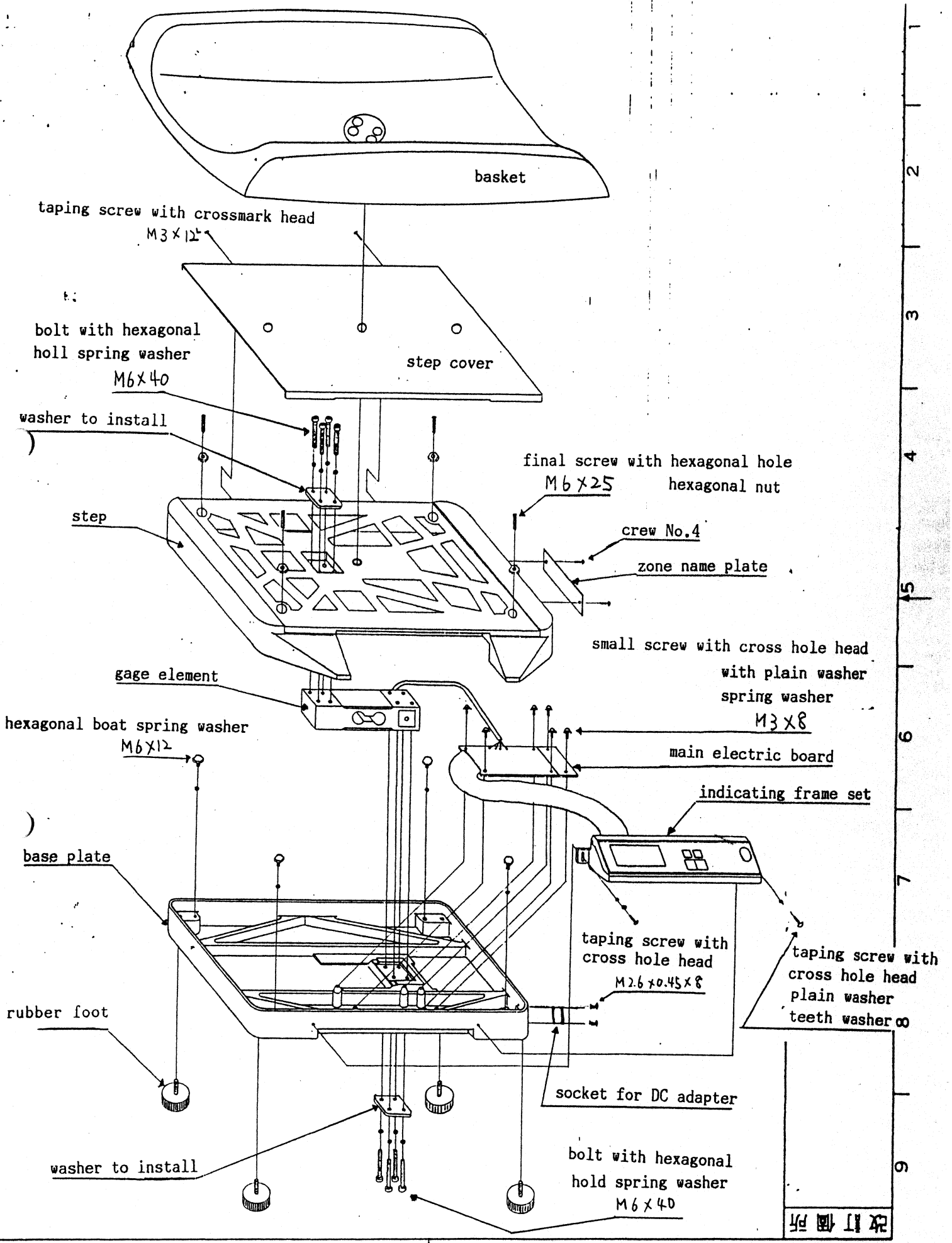
As above drawing, a tiny signal (analog signal) which you got through a load cell proportionating to load, is amplifired and is converted to A/D.

Beside, it is converted to 10,000 bit digital signal for span(capacity).

And it is put in 4 bit micro-processor through buffer circuit.
The weight is indicated on a liquid crystal after various instrument management have done in MPU. And various control by switch on a control panel are got in MPU, and they are managed in MPU equally and are out put on liquid clystal indicator.

Beside, you can use both of battery and AC electric source as supply electric source, and you can convert these to direct current and suplly supply to various section requested.

Disjointing picture of main body



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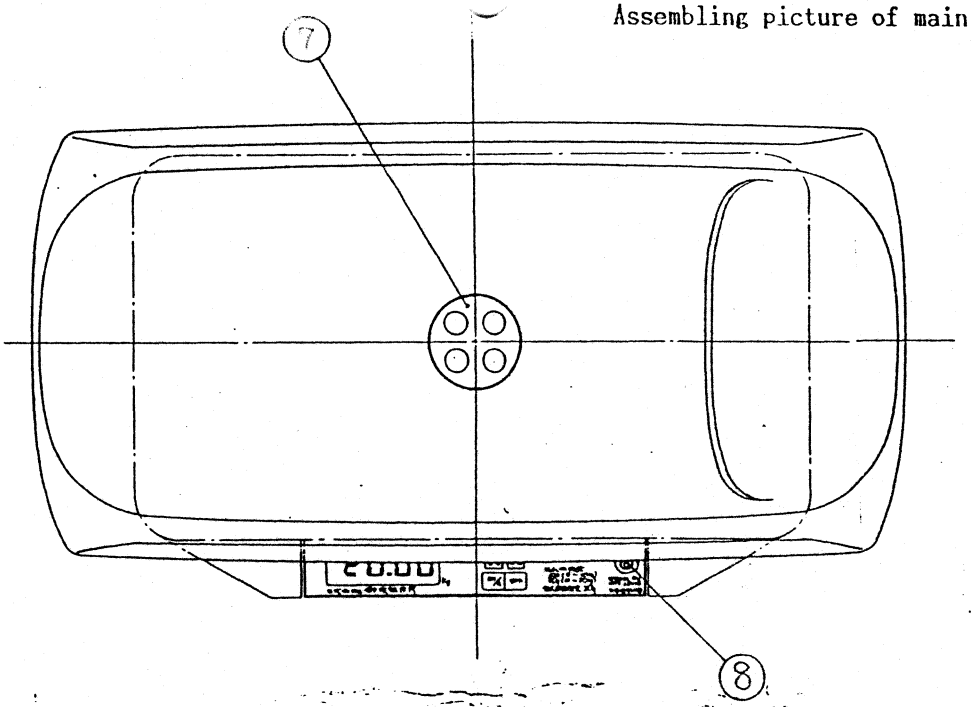
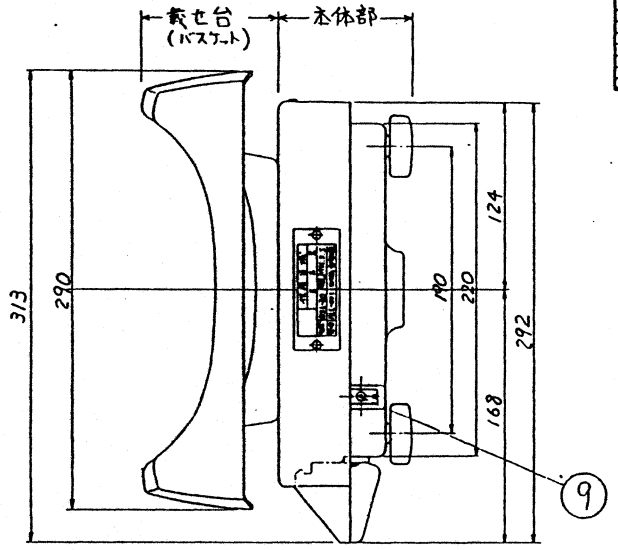
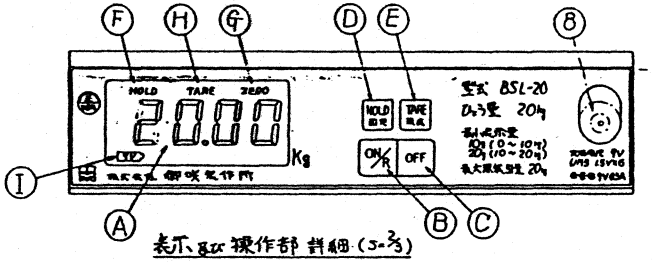
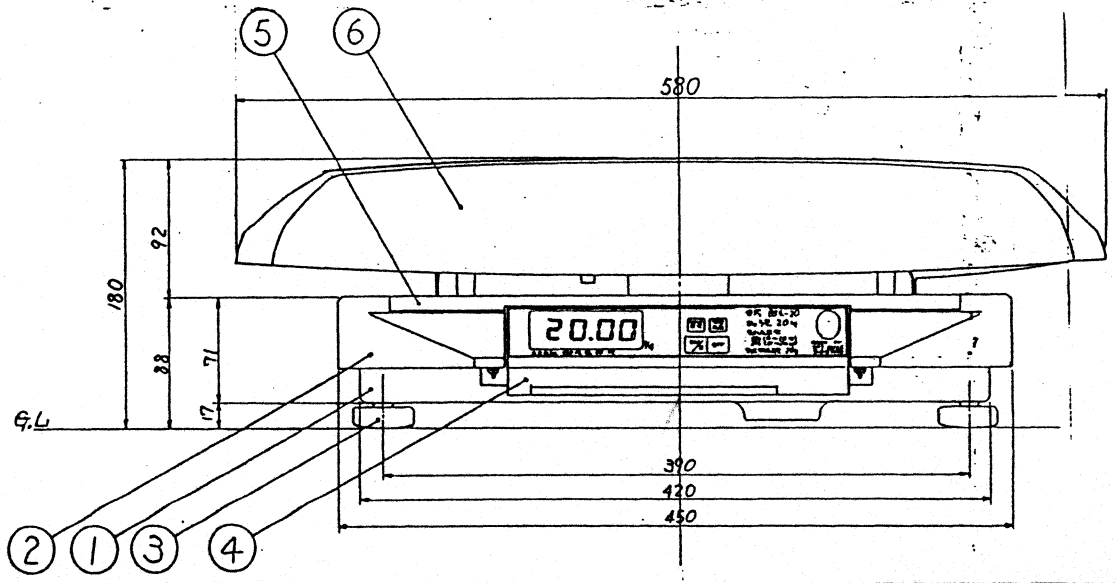
Assembling picture of main body







表示、ｷｰ操作部 詳細 (5=2/3)



A	weight indicate	9	DC power jack	··· plastic
B	ON switch	8	leveler	··· "
C	OFF switch	7	set dial	··· "
D	hold switch	6	basket	··· "
E	taring switch	5	setp cover	··· steel
F	hold indicating	4	indicators frame	··· plastic
G	zero indicating	3	adjusting stand	··· rubber
H	taring indicating	2	step	··· aluminume
I	battery indicating	1	base plate	··· aluminume

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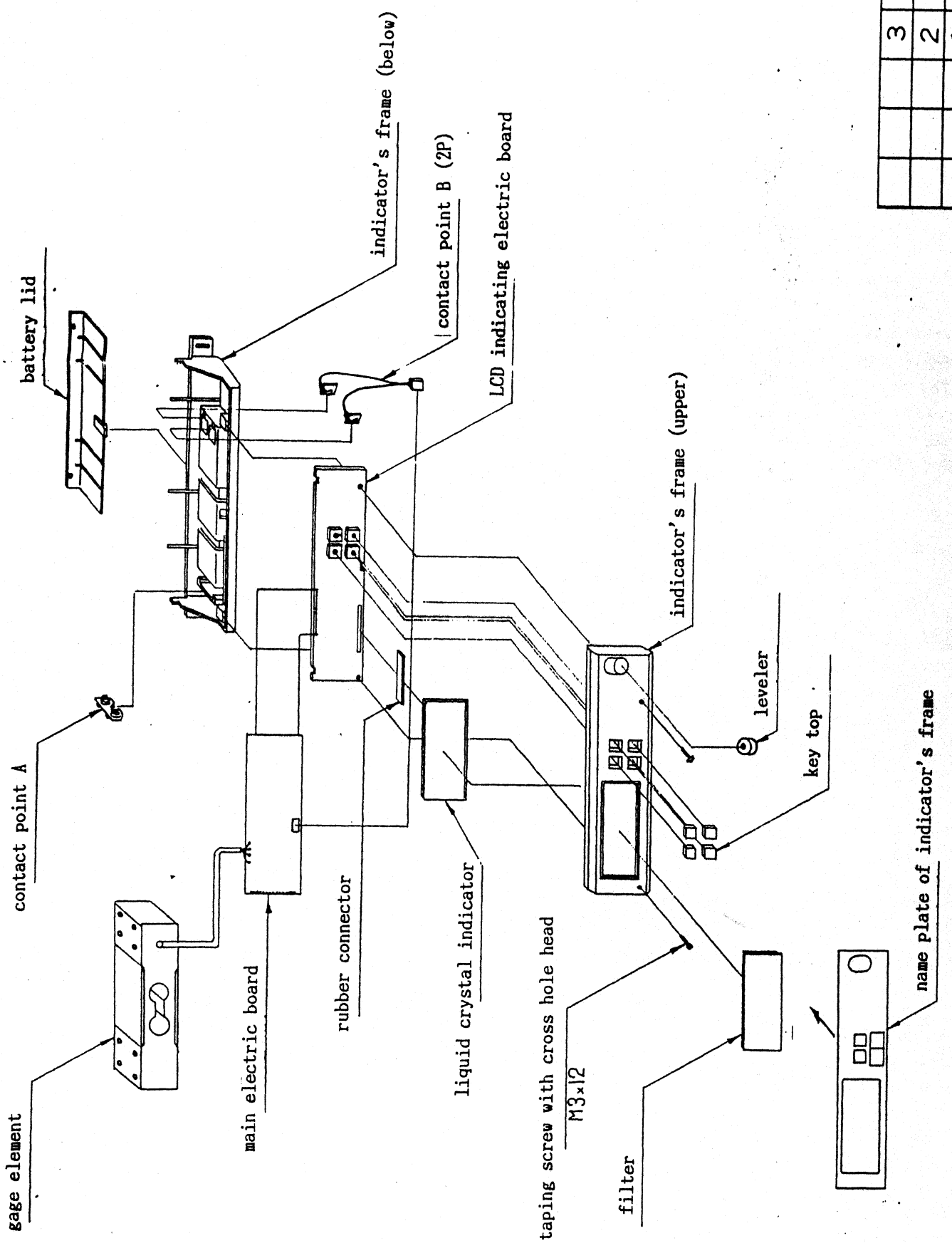
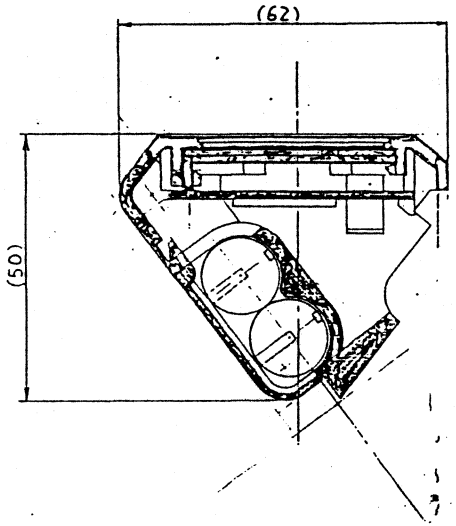
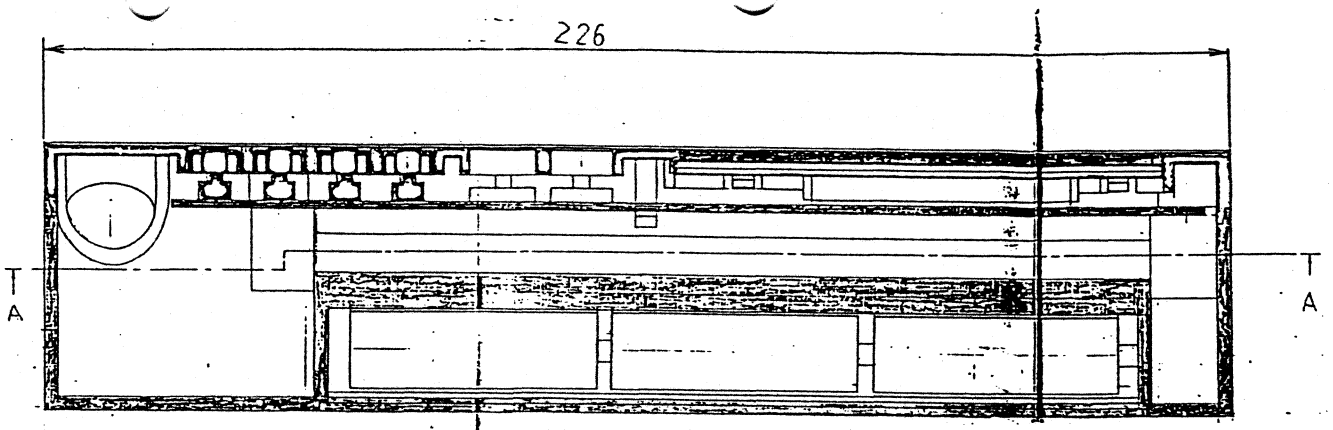
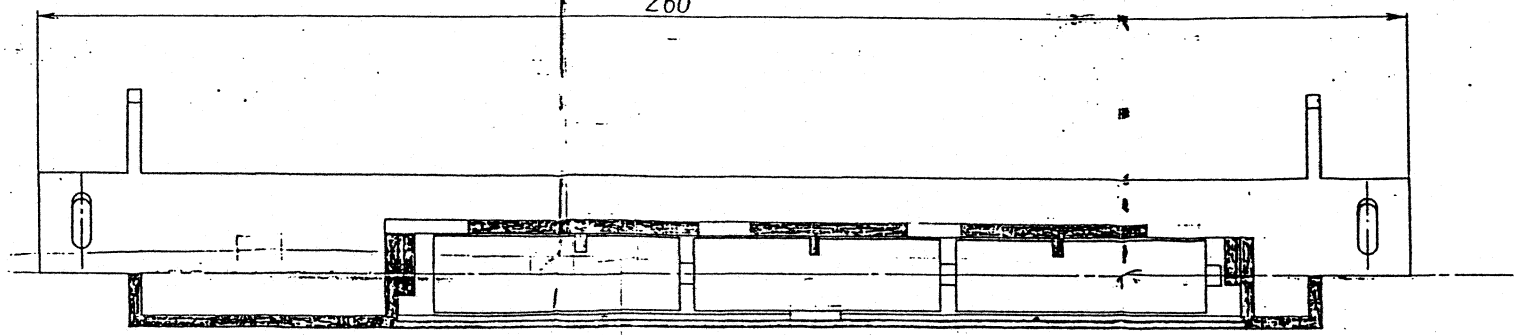
9 8 7 6 5 4 3 2 1

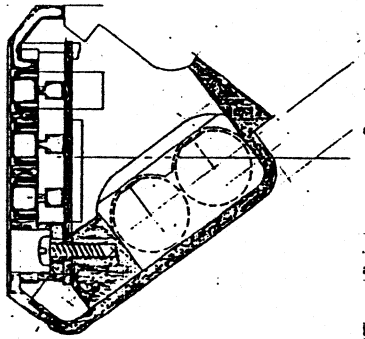
Disjointing picture of indicator



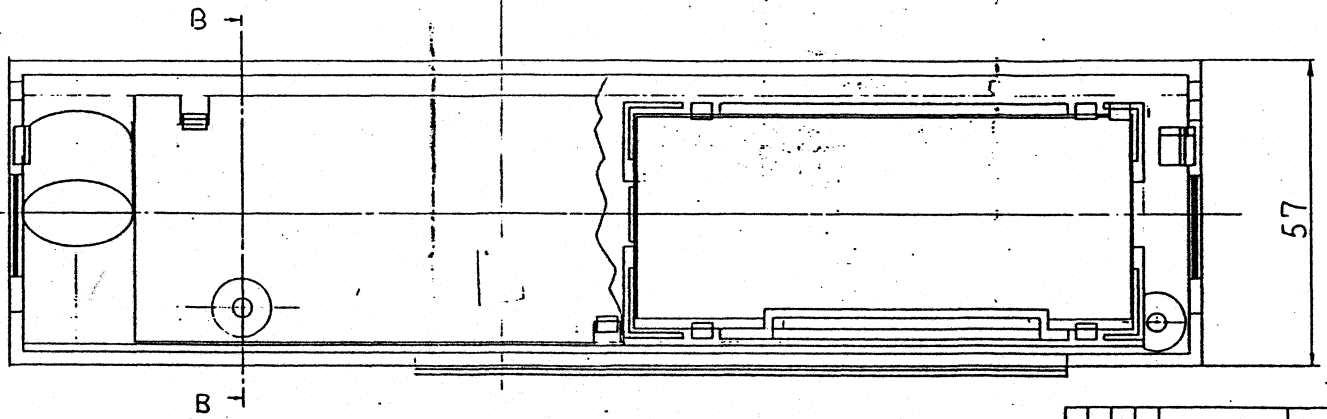








B-B CROSS SECTION

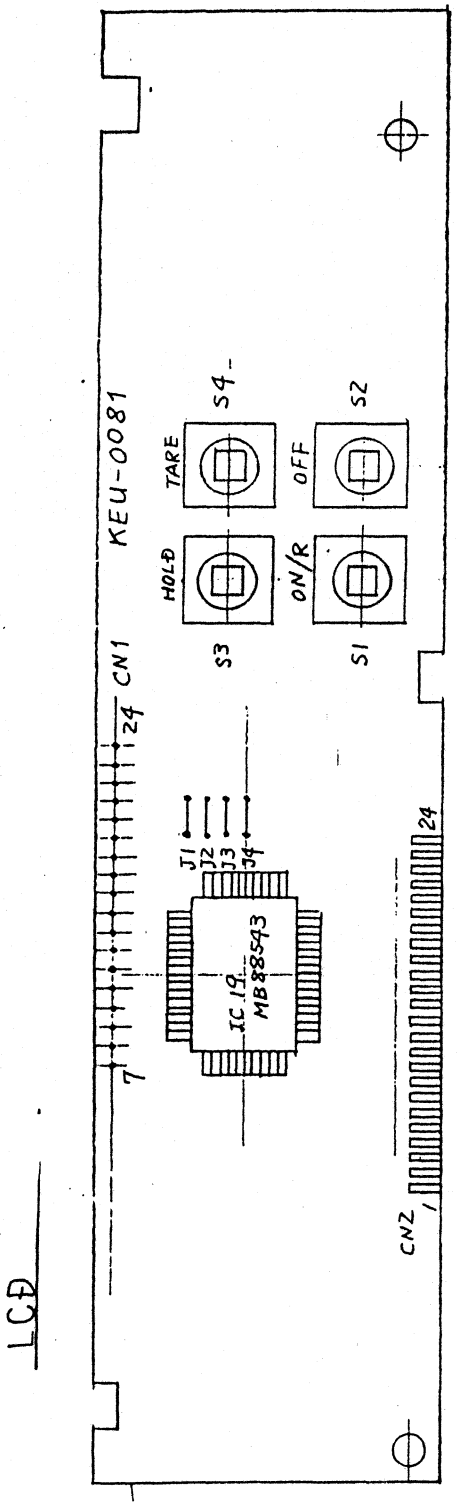


A-A CROSS SECTION

Assembling picture of indicator

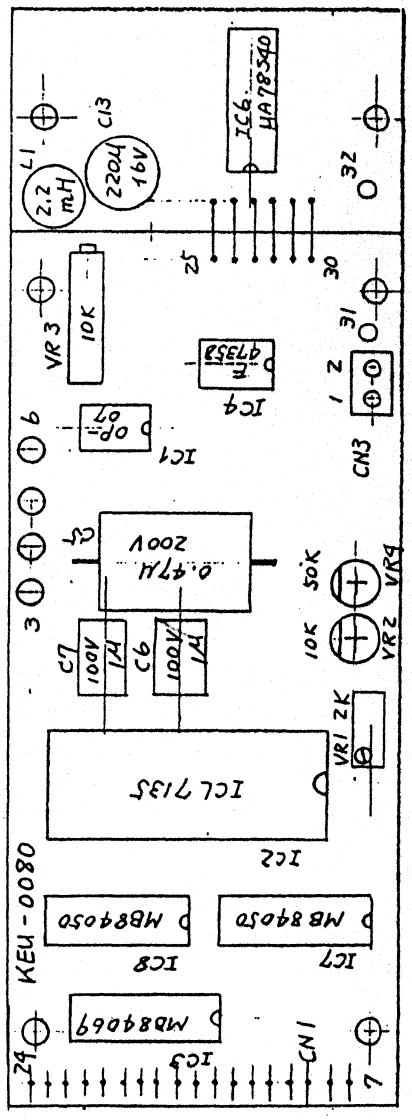
BSL-20

arrangement picture of parts on main electric board



main electric board

VR3 adjustment of electric source (shift adjustment)



VR1 Span adjustment VR4 Battery
VR2 zero adjustment 7V adjustment

7. Each specification & function and correspondence for JUMPER cable.

Although there are four JUMPER cable J1-J4 on LCD indicating electric board showing on page 7, each of JUMPER cable has the specification and function as follows. When JUMPER cable is connected it is ON, not connected it is OFF, at following table.

Name of JUMPER cable	J1	ON	ON
	J2	ON	ON
	J3	ON	ON
	J4	ON	OFF
Capacity			20.00 kg
Accuracy			1/1000
Name		test mode	baby scale

The meaning of TEST MODE is that it is mode when you adjust in plant, which indicates approximately 10,000 for each epecification capacity.

8. Easy adjustment

This baby scale has been checked for span(capacity) adjustment and temperature test, but we describe how to make easy adjustment if you will have an error on indicating figure as fellows.

1. First, you take off a basket, step cover and a step.
   (Please refer to 2. Disjointing picture of main body.)

2. Please connect AC adapter to main body.

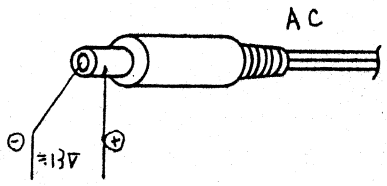
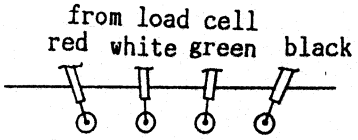
3. You put on 20 Kg check weight on platter after you turned on switch, and confirmed 0.00 indicating on liquid crystal indicator. When it indicates smaller than 20.00 Kg, please revolve a little bit span adjustment volume VR1 (refer to page 6. arrangement picture of parts on main electric boad) on main electric boad (refer 2. disjointing picture of main boad) clockwise, and when it indicates bigger than 20.00 Kg, please rebolve a little bit it counter-clockwise.

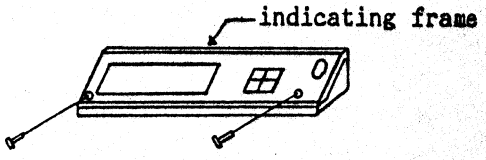
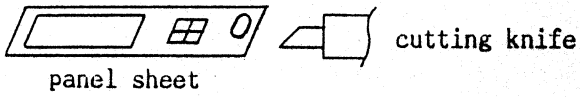
4. Please press the switch ON/R after taking off check weight.
   (confirm indicating 0.00 please)

5. Please confirm 20.00 Kg indicating on liquid crystal indicator after you put 20Kg test weight again.
   Please repeate it three, four or five times until it will indicate 20Kg, if it will not indicate 20Kg.

6. Please thrn off switch and attah a step, a step cover and a basket, after you fonfirmed that liquid crystal indicator shows correct weight comparing with actual test weight.
   Then, all of adjustment has finished.

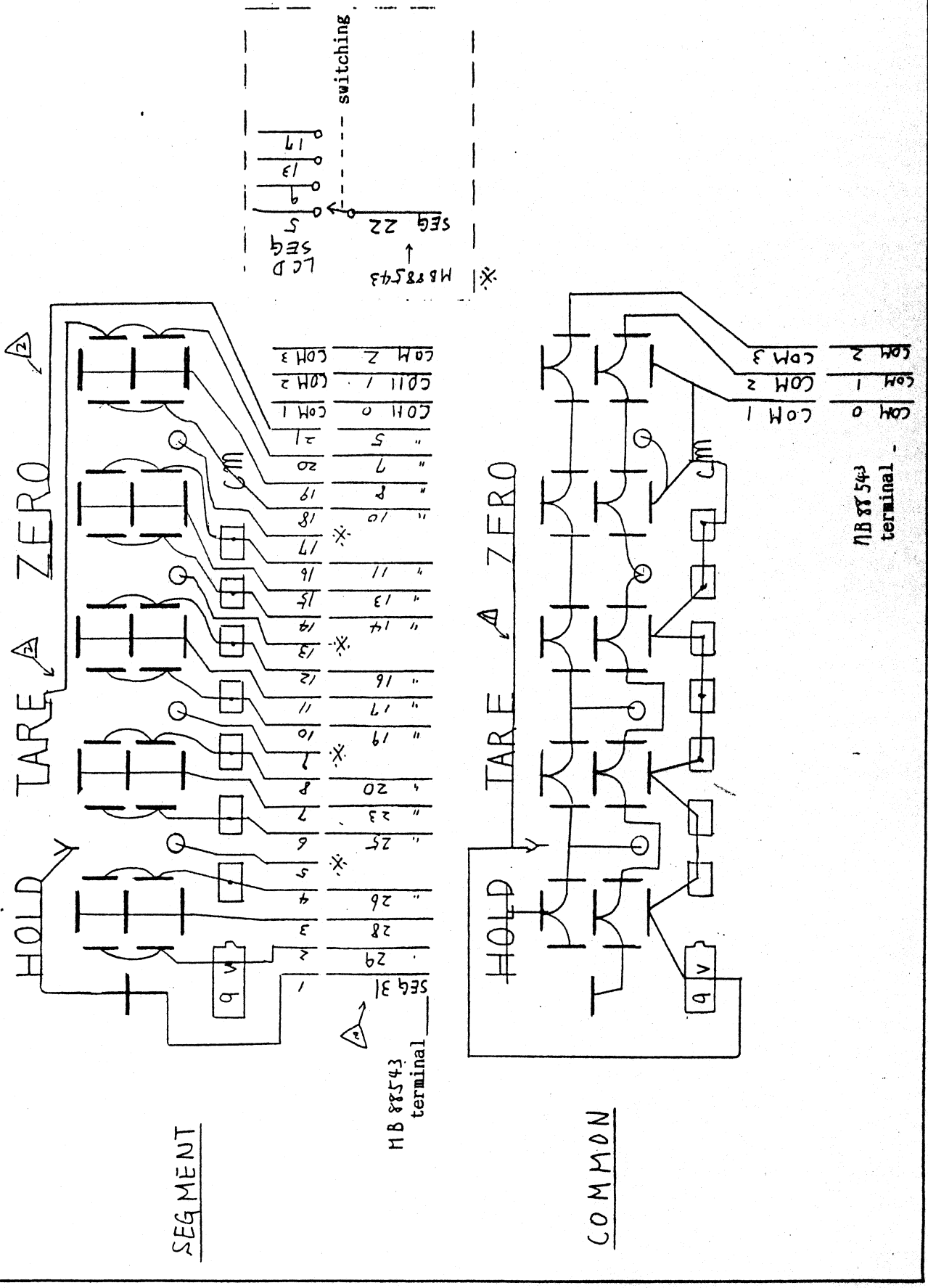
9. Trouble shooting

Trouble's phenomenon	Cause & countermeasure
A) Liquid crystal indicator on panel does not indicate at all even when you turn on electric source switch ON/R.	1. Inferior of AC adapter system 1) Take off a plug from adapter and reconnect it to adapter again. 2) Inferior of AC adapter-self - Confirm out put about 13V on AC adapter's plug using tester or DVM as following picture.  2. Inferior of battery system 1) Exchange six pieces of new batteries please, since they run out naturally. 3. Inferior of electric system 1) Please check the connector connecting from a load cell on main electric board useing DVM as follows. (refer to Page 7)  main electric board | ③ Red | ④ White | | ≒ +5V | GND | It is inferior of printed electric board bord except above mentiond. Dispatch is to our plant fo fix it. | ⑤ Green | ⑥ Black | | ≒±10mv | GND | The load cell is inferior when there is no out put of voltage and except above mentiond. Dispatch the load cell to our plant to fix please.

Trouble's phenomenon	Cause & contermeasure
B) Some digits of liquid crystal indicator or some segment does not indicate.	1. Inferior of contact of rubber connection. Take off screws of indicating frame after taking off panel sheet carefully using knife. Next, take off indicating frame useing some tweezers, then clean up both side of contacting face of rubber connector with soft cloth containing thinner. how to take off indicating frame   2. Inferior of LCD indicating. Exchange LCD indicating electric board please (refer to Page 7)
C) Liquid crystal indicator indicates lighter for whole.	1. Running out of battery Please exchange six pieces of new batteries as they run out, if 9V is indicating which located on left and below of liquid crystal indicator. 2. Inferior of contacting of rubber connector. Please clean up contacting face of rubber connector accordding to B). 3. Please exchange LCD as it indicates lighter if the life of liquid crystal is over. 4. Inferior of electric source for liquid crystal on main electric bord. (refer to Page 7) Please measure boltage between ③ red and ④ white from a load cell as above C) by tester. Dispatch it to our plant as electric board is inferior if out put is excepting 5V. We will re-adjust and fix it.

Trouble's phenomenon	Cause & countermeasure
D) Electric source is not turned off even if you press an electric switch OFF.	1. Ribbon cable No.24 which is wiring to CN1 with LCD and main electric boad (refer to page 7) is cut off at the road of an electric bord. Re-connect with a soldering copper please. 2. Confirm OFF switch does work with your finger presing OFF switch on indicating control panel. If it seems not to work, according to B) how to take off indicating frame, you take off a panel sheet and confirm OFF switch's action. If it does not work, OFF switch is inferior. If it does work, it seems that a panel sheet with carefull attention. In case of action inferior of switch such as same way please.
E) Can not measure acurately	1. Inferior of adjustment four pieces of adjusting stand. (Is not there ratting among four adjusting stand.) 2. Inferior of level adjustment. 3. Is not a table for a baby scale shivering ? 4. Does not some step contact with something ?

LCD terminal wiring diagram



改訂

△ IC7・IC8 部品変更 訂

△ IC 4 部品変更 訂

△ R17・R22 部品変更 訂 設計・部品

△ R12・R13・VR2 部品変更 訂 設計・部品

△ TR3・R17 部品変更 Tr6・R19・R20 部品変更 1996.10.17 訂 設計・部品

△ D9 部品変更 1996.10.17 訂 設計・部品

△ 仕様変更 1996.10.17 訂

△ 仕様変更 R19, R49 → 廃止 Tr4 ; 2SA1046 → 2SA1015 R8, R21 ; 2.7kΩ → 4.7kΩ R25 ; 1kΩ → 1.8kΩ R29 ; 20Ω → 2Ω R16 ; 10Ω → 2Ω

部品表図番				記事覧					記号	来歴	年月日	氏名
	A		番号	図番	部品名	材質	材寸	備考				
			1									

△ AC ADAPTOR + DC INPUT

BATT +

BATT −

IC1 NJM072D

IC2 ICL 7135

IC3 MB84069B FPT

IC6 uA 78S40

IC7 MB84050B FPT

IC8 MB84050B FPT

Tr3 2SA1015

Tr4 2SA1046

Tr5 2SC1815

Tr6 2SA1015

D9 1S1588

D1 1S1588

D2 1S1588

D3 1S1588

D4 1S1588

D5 1S1588

D6 1S1588

D7 1S1588

D8 1S1588

$T = 330 \times 10^{-12} \times 0.7 \times 10^{3} \times 2.2$

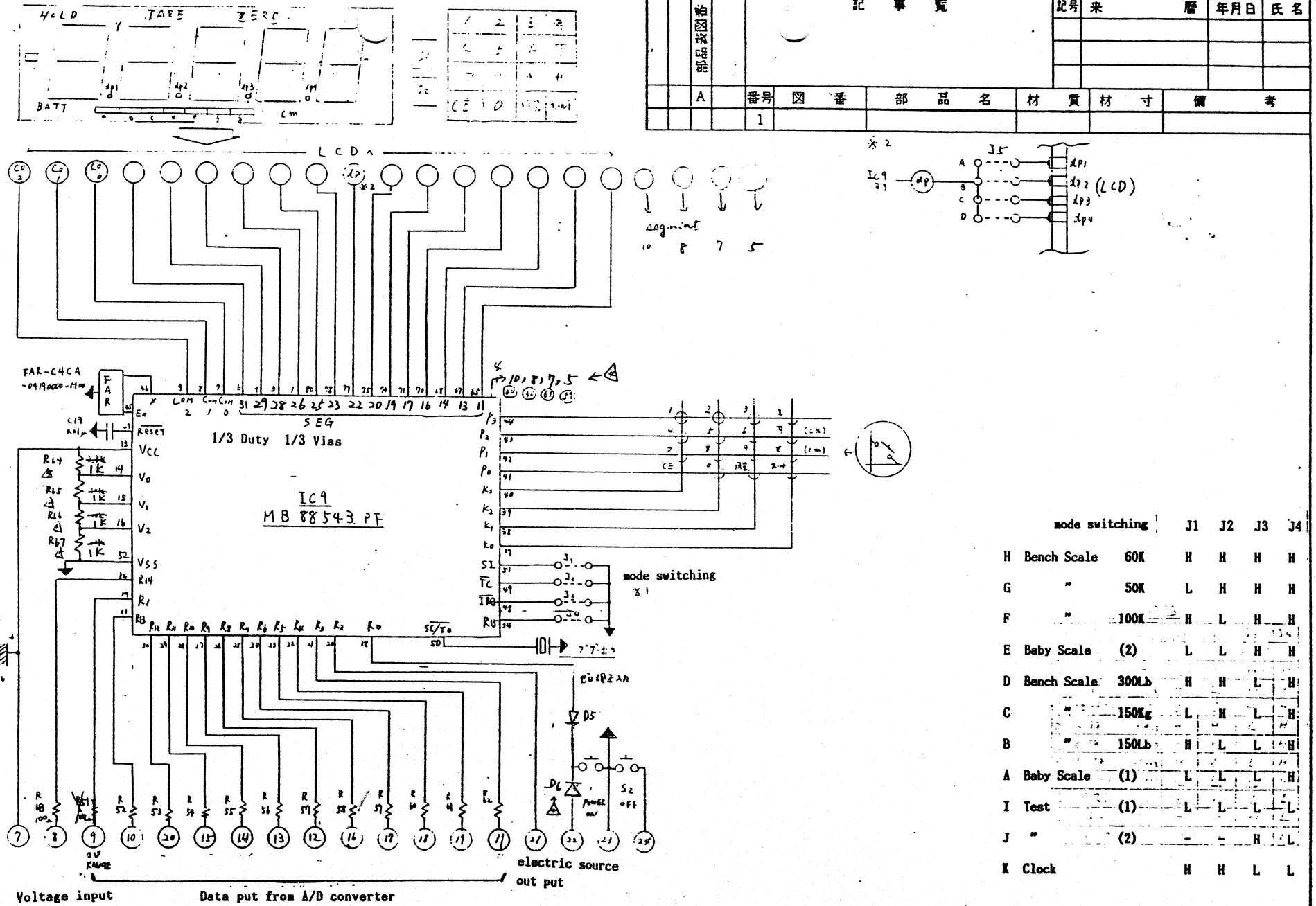
$f = \frac{1}{T} = 293\ \mathrm{kHz}$

製図	設計	審査	承認	electric circuit
11-5-17	11-5-17	— —	— —	
平野	平野			

株式会社 御咲製作所

KEU-0080

8



記事一覧

記号	来歴	年月日	氏名

部品表図番

A	番号	図番	部品名	材質	材寸	備考
	1					

mode switching		J1	J2	J3	J4
H Bench Scale	60K	H	H	H	H
G "	50K	L	H	H	H
F "	100K	H	L	H	H
E Baby Scale	(2)	L	L	H	H
D Bench Scale	300Lb	H	H	L	H
C "	150Kg	L	H	L	H
B "	150Lb	H	L	L	H
A Baby Scale	(1)	L	L	L	H
I Test	(1)	L	L	L	L
J "	(2)	-	-	H	L
K Clock		H	H	L	L

製図	設計	審査	承認
ﾊﾔｼ	ﾊﾔｼ	- -	- -
手野	手野		-

Electric circuit for Digital baby scale with load cell

株式会社 御咲製作所

KEU-0081

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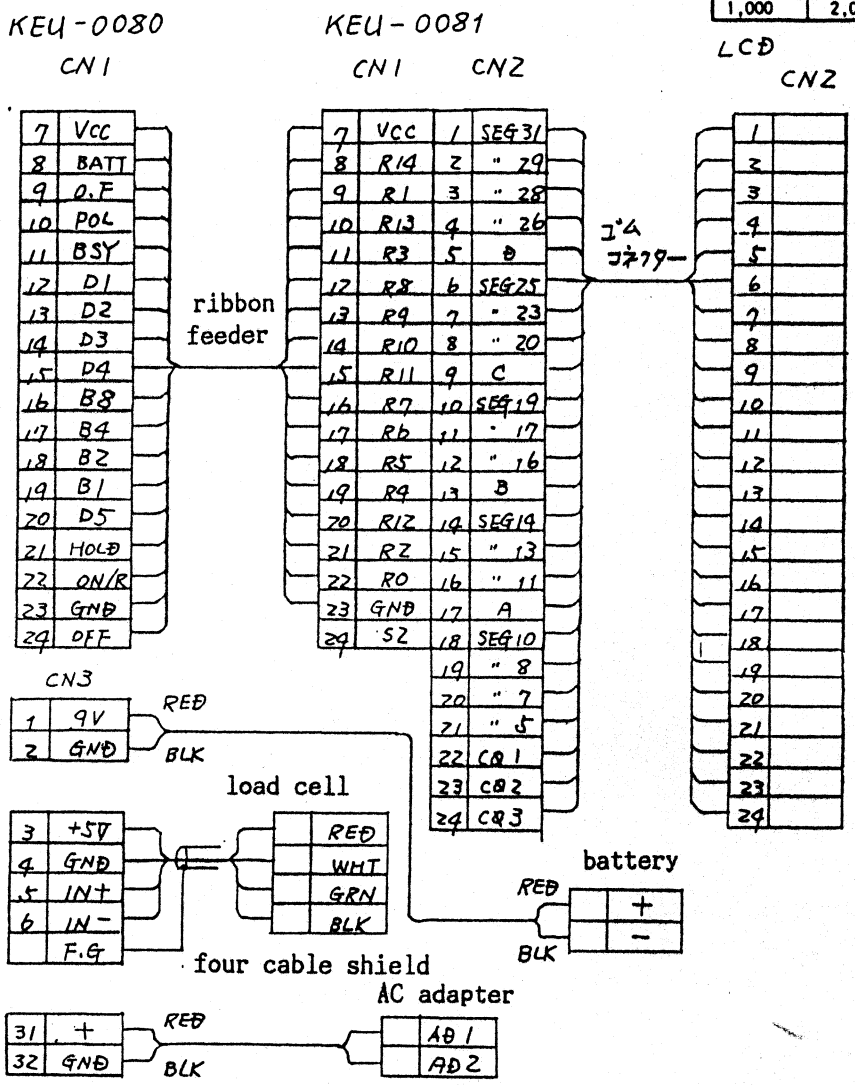
改訂個所

寸法の普通許容差			
寸法差の記入のない寸法の普通許容差は JIS B 0404 1－14 又は 1－16 に示された下表によること			
寸法の区分	公差等級	14級	16級
を超え	以下		
0.5	3	± 0.1	－
3	6	± 0.1	± 0.2
6	30	± 0.2	± 0.5
30	120	± 0.3	± 0.8
120	315	± 0.5	± 1.2
315	1,000	± 0.8	± 2
1,000	2,000	± 1.2	± 3



備考	個数 NO. REQD	品番 PARTS NO.	部品名称 NAME OF PARTS	材料 MATERIAL	仕上重量 (kg) WEIGHT	摘要 REMARKS
	A					

整番 FILE NO.		製番 ORDER NO.	
第三角法 THIRD ANGLE PROJECTION	日付 DATE 1988. 11. 4	尺度 SCALE	形式 TYPE / 納入先 CUSTOMER
承認 APPROVED BY	検図 CHECKED BY	担当 DESIGNED BY / 製図 DRAWN BY	図名 TITLE: SUYASUYA Matual wiring Diagram
株式会社 御咲製作所			図番 DWG. NO.

4 3 2 1